Ferdinando Costantino, CV

Personal data
Nationality: Italian.
City of birth: Perugia.
Date of birth: 23/08/1977
ORCID ID: 0000-0002-2120-1456
ResearcherID: F-8603-2014
ScholarID: https://scholar.google.it/citations?hl=it&user=qOYh3KAAAAAJ&view_op=list_works
Professional status: researcher at DCBB, University of Perugia

Education, career
2001: Graduated in Earth Sciences with laude at the University of Perugia
January 2005: PhD in chemistry at the same University
2006 - 2007: Post-Doctoral grant of one year duration at the University of Rennes, France, working in the
laboratory "Equipe materiaux - Sciences Chimiques de Rennes"
2007 - 2008: research fellow at the University of Perugia and from the beginning of 2009 he is assistant professor in general and inorganic chemistry in the same University
2010 - 2015:Associate researcher at the ICCOM-CNR institute in Florence.
April - August 2013: he spent three months at the University of California, San Diego as Visiting Scholar
In 2013 he obtained the scientific qualification as associate professor in Inorganic and General Chemistry (SSD/CHIM03)
In 2018 he obtained the scientific qualification as full professor in Inorganic and General Chemistry (SSD/CHIM03)
Languages: English, French, Spanish

Scientific production
Dr. Ferdinando Costantino is co-author of more than 75 original research papers published in international peer-reviewed journals and of more than 50 scientific communications at national and international congresses.
Author of three book chapters edited by Wiley and RSC (Royal Society of Chemistry) upon invitation
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Memberships
Member of the Italian Crystallographic Association (AIC)
Member of the Italian Chemical Society (SCI) (inorganic chemistry division)
Member of INSTM (Consorzio Interuniversitario Scienza e Tecnologia dei Materiali)

Prizes
In 2015 he won the "Nardelli Prize" from AIC (Associazione Italiana di Cristallografia) reserved to young researchers under 40 years working in the field of crystallography who got relevant results in their scientific activity and working/developing crystallographic methods

Recent Projects:
2011-2014: Project FIRB - Futuro in Ricerca 2010: "*Multidisciplinar Modelling of Materials with layered Structure*"- local coordinator of University of Perugia Research Units

2013-2014: Fondazione Cassa Risparmio di Perugia 2013 "*Sintesi di nuovi assorbenti solidi per l'assorbimento di CO_2 da fumi di post combustione*" progetto-CRP2013021260, Principal Investigator

Invited conferences:
-Invited speaker at the international workshop on layered materials, Liblice (Czech Republic) 11-14 September 2013 (plenary lecture).
-University of Zurich 20/2/2013. Invited seminar. "*Hybrid multifunctional materials based on phosphonates and LDH for sustainable processes*"
-University of Rennes 16/5/2013. Invited seminar "*Rigid and flexible coordination polymers based on phosphonates and phosphinates for proton conductivity and CO_2 storage*"
-Ecole de Chimie de Rennes 7/12/2016. Invited seminar *"Design of tailored hybrid layered and framework materials for application in catalysis and energy".*

Chair activity
-September 20-23, 2009,XLIX AIC congress, Chairman of the microsimposium "*hybrid materials*"
-September 15-18 2014, 2nd Joint AIC-SILS conference, Chairman of the microsimposium "*News from the Crystal-Chemistry of Inorganic Compounds: from Nature to Tailor-Made Materials*"

Resume of the scientific activity
The scientific activity of Dr. Costantino is oriented toward the preparation, characterization and functionalization of inorganic-organic hybrid materials based on metal phosphonates and phosphinates of transition and rare-earth metals with gas sorption, catalytic and optical properties.
-Synthesis and characterization of metal nanoparticles supported on low dimensional materials like HTlc (hydrotalcite- like compounds) and metal phosphonates to be used in heterogeneous catalysis in green conditions.
-Synthesis and characterization of Metal-Organic Frameworks (MOFs) with high stability based on metal phosphonates.
-Synthesis of low dimensional materials based on zirconium phosphonates and their application in organo-catalysis and proton conductivity.
He is expertise in several solid-state techniques such as X-Ray single-crystal and powder diffraction (also in non-ambient conditions), structural analysis, thermogravimetric techniques, SEM and TEM microscopies.

Selected publications

1: *"Supramolecular coordination assemblies of dinuclear Fe^{III} complexes"*
Wolfgang Schmitt, Jonathan P. Hill, Paula Juanico, Andrea Caneschi, Ferdinando Costantino, Christopher E. Anson and Annie K. Powell.
Angew. Chem. Int. Ed., **2005,** *44,* 27, 4187 (cover picture)

2: "*EPR, SEM-EDS, XRPD, NMR characterization of iron-rich fired clays"*
F. Presciutti, D. Capitani, A. Sgamellotti, G. Brunetti, F. Costantino, S. Viel, and A. L. Segre
J. Phys. Chem. B, **2005,** *109,* 22147-22158

3: *"New architectures for zirconium polyphosphonates with a tailor-made open framework structure"*
Riccardo Vivani , Ferdinando Costantino, Umberto Costantino, Morena Nocchetti

Inorg. Chem. **2006**, *45*, 2388-2390

4 : "*Direct synthesis from various tetraphosphonic building blocks of homologous hybrid layered copper(II) derivatives incorporating copper hydrate cations.*"
Ferdinando Costantino, Thierry Bataille, Nathalie Audebrand, Eric Le Fur and Claudio Sangregorio
Crystal Growth & Design **2007**, *7*, 1881-1888

5: "*Thermal Effects on Mixed Metal (Zn/Al) Layered Double Hydroxides (LDHs): Direct Modelling of the X-Ray Powder Diffraction (XRPD) Line-Shape Through Molecular Dynamics (MD) Simulations"*
Giuseppe M. Lombardo, Giuseppe C. Pappalardo, Ferdinando Costantino, Umberto Costantino, Michele Sisani.
Chem. Mater. **2008,** *20,* 5585–5592

6: "*A Snapshot of a Coordination Polymer Self-Assembly Process: the Crystallization of a 3D Network Followed by the Spontaneous Transformation in Water to a 2D Pseudopolymorphic Phase*"
Thierry Bataille, Ferdinando Costantino, Andrea Ienco, Annalisa Guerri, Fabio Marmottini and Stefano Midollini
Chem. Commun., **2008**, 6381–6383

7: *"Synthesis and Crystal Structure from X-ray Powder Diffraction Data of Two Zirconium Diphosphonates Containing Piperazine Groups"*
Marco Taddei, Ferdinando Costantino, Riccardo Vivani
Inorg. Chem. **2010**, *49*, 9664-9670

8: *Multi-luminescent layered lanthanide phosphono- carboxylates nanoparticles: structures, morphologies and photophysical properties."*
Ferdinando Costantino, Pier Luigi Gentili, Federica Presciutti, Fabio Evangelisti
Chem. Eur. J. **2012**, 18*,* 4296-4307

9: *"A Multi-technique Experimental Insight On An Unusual Crystal-to-Crystal High Temperature Solid State Reaction in Zirconium Carboxypyridinephosphonates: from 1D Chains to 2D Hybrid Layers."*
Taddei, M; Costantino, F.; Sassi, P.; Geppi, M.
Cryst Growth & Design **2012**, 12, 5462−5470

10: "*Synthesis, breathing, and gas sorption study of the first isoreticular mixed-linker phosphonate based metal–organic frameworks"*
Marco Taddei, Ferdinando Costantino, Andrea Ienco, Angiolina Comotti, Phuong V. Daud and Seth M. Cohen
Chem. Commun. **2013,** 49, 1315-1317

11: "*The use of a rigid tritopic phosphonic ligand for the synthesis of a robust honeycomb-like layered zirconium phosphonate framework"*
Marco Taddei, Ferdinando Costantino, Riccardo Vivani, Stefano Sabatini, Sang-Ho Lim, Seth M. Cohen
Chem. Commun. **2014**, *50* , 5737-5740

12: "*Water-Mediated proton conduction in a robust triazolyl phosphonate metal-organic framework with hydrophilic nanochannels"*
Begum, S., Wang, Z., Donnadio, A., Costantino, F., Casciola, M., Valiullin, R., Chmelik, C., Bertmer, M., Kärger, J., Haase, J., Krautscheid, H.
Chem. - A Eur. J., **2014**, 20, 8862-8866.

13: "*Accessing stable zirconium carboxy-aminophosphonate nanosheets as support for highly active Pd nanoparticles"*
Ferdinando Costantino, Riccardo Vivani, Maria Bastianini, Luca Ortolani, Oriana Piermatti, Morena Nocchetti and Luigi Vaccaro
Chem. Commun. **2015**, 51, 15990-15993

14: *"Robust Metal-Organic Frameworks Based on Tritopic Phosphonoaromatic Ligands."*
Taddei Marco, Costantino Ferdinando, Vivani Riccardo
Eur. J. Inor. Chem., **2016**, 4300-4309

15: "*Mixed Membrane Matrices Based on Nafion/UiO-66/SO3H-UiO-66 Nano-MOFs: Revealing the Effect of Crystal Size, Sulfonation, and Filler Loading on the Mechanical and Conductivity Properties"*
Anna Donnadio, Riccardo Narducci, Mario Casciola, Fabio Marmottini, Roberto D'Amato, Mehdi Jazestani, Hossein Chiniforoshan, Ferdinando Costantino
ACS appl. Mat. & Interfaces **2017**, *9*, 42239-42246